

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (canceled).

2. (previously presented): The process according to claim 9, wherein the tetracarboxylic dianhydride contains a fluorine atom.

3. (previously presented): The process according to claim 9, wherein the diamine contains a fluorine atom.

4. (previously presented): The process according to claim 9, wherein the 1,4-dihydropyridine derivative represented by formula (I) is selected from the group consisting of 1-ethyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 1-methyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 1-propyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine and 1-propyl-3,5-diethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine.

5. (previously presented): The process according to claim 4, wherein the 1,4-dihydropyridine derivative represented by formula (I) comprises 1-ethyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine.

Claim 6. (canceled).

7. (previously presented): The process according to claim 9, wherein the pulse width is 10×10^{-15} to 500×10^{-15} second.

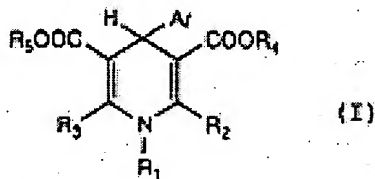
8. (previously presented): The process according to claim 9, wherein the pulse width is about 50×10^{-15} to about 300×10^{-15} second.

9. (currently amended): A process for producing a three-dimensional polyimide optical waveguide, which comprises:

(I) irradiating a polyamic acid film with a laser beam while converging the laser beam at an inside portion of the film and relatively moving the light convergence point, the polyamic acid film containing:

(a) a polyamic acid obtained from a tetracarboxylic dianhydride and a diamine; and

(b) per 100 parts of the polyamic acid, from 0.5 part by weight to less than 10 parts by weight of a 1,4-dihydropyridine derivative represented by formula (I):



wherein Ar represents an aromatic group having a nitro group at an ortho-position with respect to the bonding position to the 1,4-dihydropyridine ring; R₁ represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms; and R₂, R₃, R₄ and R₅ each independently represents a hydrogen atom or an alkyl group having 1 or 2 carbon atoms, and then,

(II) heating the polyamic acid film to imidize the polyamic acid, thereby obtaining an optical waveguide having a continuous core region where the refraction index has been changed, in the thus formed polyimide film,

wherein the laser beam is a pulse laser having a pulse width of 10^{-15} to 10^{-12} second and the pulse laser has a repeating frequency of from ~~1 Hz to 80 MHz~~ 10 Hz to 500 kHz.

Claim 10. (canceled).

11. (previously presented): The process according to claim 9, wherein the irradiation of the pulse laser is carried out at an irradiation energy of from 1 to 500 mW.

12. (original): The process according to claim 11, wherein the irradiation energy of the pulse laser is from 10 to 100 mW.

13. (previously presented): The process according to claim 9, wherein an irradiated site of the polyamic acid film has a refraction index greater than that of a non-irradiated site of the polyamic film.

14. (previously presented): The process according to claim 9, wherein irradiation changes the refraction index of the polyamic acid film.